

Notice of Allowability

Application No.

10/791,199

Examiner

George L. Walton

Applicant(s)

HALL ET AL.

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview summary and the examiner's amendment.
2. ☒ The allowed claim(s) is/are 1-7,9,11-14 and 16-19.
3. ☒ The drawings filed on 02 March 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>11/18/04</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>6/17/04</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Bryan J. Lempia on November 18, 2004.

The application has been amended as follows:

CLAIMS

1. (Currently Amended) A replaceable valve seat ring comprising:

an annular ring body having a perimeter;

an open flow passage extending through the ring body;

a circular seating surface on the ring body ~~adjacent to one end of~~ positioned along the flow passage; and

a square, smooth walled, ~~four-sided~~ cylinder shaped tool accepting region formed concentric within and at least partially along the flow passage, the tool accepting region having ~~two pairs of parallel flat sides forming a square recess with a tapered top surface~~ that smoothly transitions inward from the perimeter to the walls of the tool accepting region, and having smooth rounded corners interconnecting adjacent walls of the tool accepting region ~~ones of the flat sides~~, the tool accepting region adapted to receive a standard, square tool head socket extension therein for installing and removing the valve seat ring; and

an intermediate surface that smoothly and gradually transitions between the square cylinder tool accepting region and the circular seating surface and defines an inlet to a flow orifice.

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2. (Currently Amended) A replaceable valve seat ring according to claim 1, ~~further comprising a~~ wherein the flow orifice is arranged in series and concentric with the tool accepting region along at least a portion of the flow passage.

3. (Original) A replaceable valve seat ring according to claim 2, wherein the flow orifice is contoured and sized differently than the tool accepting region to provide desired flow characteristics and is arranged downstream of the tool accepting region.

4. (Original) A replaceable valve seat ring according to claim 2, wherein transition surfaces extending between the flow orifice and the tool accepting region are substantially smooth and gradual to enhance flow efficiency and dynamics.

5. (Original) A replaceable valve seat ring according to claim 1, wherein the tool accepting region extends over a substantial portion of a length of the flow passage.

6. (Original) A replaceable valve seat ring according to claim 1, wherein the ring body has an exterior perimeter surface and a mechanical engaging feature provided on at least a part of the exterior perimeter surface, the mechanical engaging feature adapted to releasably engage with a complimentary portion of a valve assembly.

7. (Original) A replaceable valve seat ring according to claim 6, wherein the exterior perimeter surface is a circular cylinder and wherein the mechanical engaging feature comprises a plurality of mechanical threads.

8. (Canceled)

9. (Previously Presented) A replaceable valve seat ring according to claim 1, further comprising an exterior circular cylinder perimeter surface with a first portion having a first diameter and a necked-down seating portion with a second diameter that is smaller than the first diameter for aligning the valve seat ring when installed in a valve.

10. (Canceled)

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11. (Currently Amended) A valve assembly comprising:

a valve body;

a fluid passageway extending through the valve body and having a fluid inlet and a fluid outlet;

an orifice region defined within the fluid passageway;

a valve plug disposed within the passageway; and

a replaceable annular valve seat ring positioned in the orifice region, wherein the valve seat ring and the valve plug are movable relative to one another to selectively open or close the flow passage, wherein the valve seat ring has a perimeter, an open flow passage extending therethrough, a circular seating surface ~~adjacent to one end of~~ positioned along the flow passage, and a square, smooth walled four-sided cylinder shaped tool accepting region formed concentric within and at least partially along the flow passage, the tool accepting region being part of the flow passage and having ~~two pairs of parallel flat sides and~~ a tapered top surface that smoothly transitions inward from the perimeter to the walls of the tool accepting region, and having smooth rounded corners between adjacent walls of the tool accepting region ~~ones of the flat sides~~, the tool accepting region adapted to receive a standard, square tool head socket extension therein for installing and removing the valve seat ring; and

an intermediate surface that smoothly and gradually transitions between the square cylinder tool accepting region and the circular seating surface and that defines an inlet to a flow orifice.

12. (Original) A valve assembly according to claim 11, wherein the valve seat ring is installed in a fixed position within the orifice region and wherein the valve plug is selectively movable into and out of contact with the seating surface of the valve seat ring.

13. (Original) A valve assembly according to claim 11, wherein the valve seat ring has an exterior perimeter surface and a mechanical engaging feature provided on at least a part of the exterior perimeter, and wherein a portion of the orifice region

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includes a complimentary mechanical feature adapted to releasably engage with the mechanical engaging feature of the valve seat ring surface for securing and aligning the valve seat ring within the orifice region.

14. (Original) A valve assembly according to claim 13, wherein the mechanical engaging feature and the complimentary mechanical feature each comprise either male or female mechanical threads.

15. (Canceled)

16. (Original) A valve assembly according to claim 11, wherein the valve seat ring has an exterior circular cylinder perimeter surface with a first portion having a first diameter and a necked-down seating portion with a second diameter that is smaller than the first diameter, and wherein the orifice region has a complimentary stepped surface.

17. (Currently Amended) A valve assembly according to claim 11, wherein ~~the valve seat ring also has a flow orifice~~ is arranged in series and concentric with the tool accepting region along at least a portion of the flow passage, and wherein the flow orifice is contoured and sized differently than the tool accepting region to provide desired flow characteristics, ~~and wherein transition surfaces extending between the flow orifice and the tool accepting region are substantially smooth and gradual to enhance flow efficiency and dynamics.~~

18. (Currently Amended) A method of installing a valve seat within a valve assembly, the method comprising the steps of:

choosing an appropriate valve seat having an annular ring body with a perimeter, an open flow passage extending through the ring body, a circular seating surface positioned along the flow passage, and a square, smoothed walled four-sided cylinder shaped tool accepting region of the flow passage formed concentric with and at least partially along the flow passage, the tool accepting region having two pairs of parallel flat sides forming a square recess with a tapered top surface that smoothly transitions inward from the perimeter to the walls of the tool accepting region, and having smooth rounded corners between adjacent walls ~~ones of the flat sides~~, and an intermediate surface that

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smoothly and gradually transitions between the square cylinder tool accepting region and the circular seating surface and that defines an inlet to a flow orifice;

placing the chosen valve seat into a flow orifice of a valve body of the valve assembly;

selecting a tool socket wrench with a standard square ~~four-sided~~ tool head socket extension ~~with two pairs of flat parallel sides~~ that fit fits within the tool accepting region;

inserting the standard square four-sided tool head socket extension into the tool accepting region of the valve seat;

and manipulating the tool socket wrench to install the valve seat into the orifice region.

19. (Original) A method of installing a valve seat according to claim 18, further comprising:

repeating the steps of selecting, inserting, and manipulating in order to remove the valve seat from the valve assembly.

20. (Canceled)

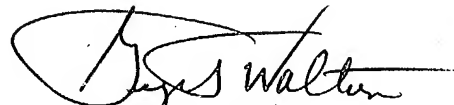
CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George L. Walton whose telephone number is 571-272-4920. The examiner can normally be reached on M-F, 8:00-4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "George L. Walton", with a large, stylized initial "G" and "W".

George L. Walton
Primary Examiner
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GLW